Abstracts

Optical FM Signal Amplification by Injection Locked and Resonant Type Semiconductor Laser Amplifiers

S. Kobayashi and T. Kimura. "Optical FM Signal Amplification by Injection Locked and Resonant Type Semiconductor Laser Amplifiers." 1982 Transactions on Microwave Theory and Techniques 30.4 (Apr. 1982 [T-MTT] (Joint Special Issue on Optical Guided Wave Technology)): 421-427.

Optical FM signal amplification by semiconductor lasers is studied by emphasizing their bandwidth characteristics. The laser is operated either in an injection-locked mode or in a resonant amplification mode by keeping the drive current above or just below its threshold. The bandwidths of both amplifiers are evaluated by the reduction in modulation sidebands and are compared with the bandwidths measured statically by scanning the frequency of incident CW wave. The radic G = 25 GHz gain bandwidth product is obtained for both operation modes using a double heterostructure AlGaAs semiconductor laser. The bandwidth obtained in the above procedure is in good agreement with theoretical results.

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